Prototyping Tensegrity Lander Systems for Icy Terrain

Completed Technology Project (2017 - 2018)

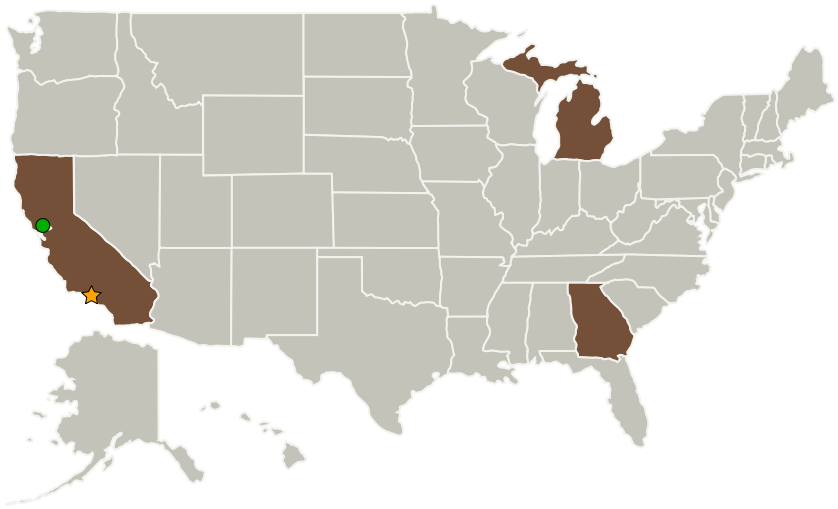
Project Introduction

Demonstrate that a tensegrity lander is a low-cost and revolutionary landing concept for exploring icy terrain where landing forces, payload protection and mobility are all integrated into a single structure built only from rods and flexible cables.

Anticipated Benefits

The novel lander system is capable of going places where rovers and current landers "can't go", for example slopes, crevasses, loose soil/ice. It could be used as a secondary payload that offers redundant mission success, images from a new world (Philae as cautionary tale). Eventually primary landing using tensegrity opens new DV regime vs. airbag- and Skycrane-based approaches, potentially increased science per $.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Center Innovation Fund: JPL CIF

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
●Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California
Georgia Institute of Technology-Main Campus(GA Tech)	Supporting Organization	Academia	Atlanta, Georgia
University of Michigan-Ann Arbor	Supporting Organization	Academia	Ann Arbor, Michigan

Primary U.S. Work Locations	
California	Georgia
Michigan	

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html

Project Management

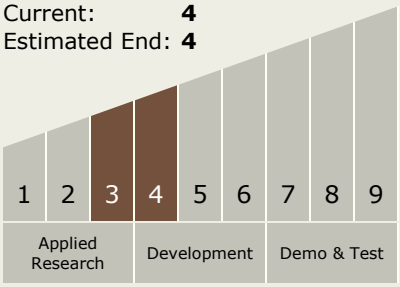
Program Director:
Michael R Lapointe

Program Manager:
Fred Y Hadaegh

Principal Investigator:
Samuel C Bradford

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.2 Descent
    - TX09.2.1 Aerodynamic Decelerators

Target Destinations

Earth, Mars, Others Inside the Solar System